

SEQUENCE LISTING

<110> Novo Nordisk A/S

<120> TRANSGENIC PLANT EXPRESSING MALTOGENIC ALPHA-AMYLASE

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<170> PatentIn Ver. 2.1

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<211> 2160

<212> DNA

<213> *Bacillus* sp.

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<221> mat_peptide

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Ala Ser Ser Ser Ala Ser Val Lys Gly Asp Val Ile Tyr Gln Ile Ile
-1 1 5 10 15

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Ile Asp Arg Phe Tyr Asp Gly Asp Thr Thr Asn Asn Asn Pro Ala Lys
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agt tat gga ctt tac gat ccg acc aaa tcg aag tgg aaa atg tat tgg 240
Ser Tyr Gly Leu Tyr Asp Pro Thr Lys Ser Lys Trp Lys Met Tyr Trp
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ggc ggg gat ctg gag ggg gtt cgt caa aaa ctt cct tat ctt aaa cag 288
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ctg ggc gta acg aca atc tgg ttg tcc ccg gtt ttg gac aat ctg gat 336
 Leu Gly Val Thr Thr Ile Trp Leu Ser Pro Val Leu Asp Asn Leu Asp
 65 70 75

aca ctg gcg ggc acc gat aac acg ggc tat cac gga tac tgg acg cgc 384
 Thr Leu Ala Gly Thr Asp Asn Thr Gly Tyr His Gly Tyr Trp Thr Arg
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gat ttt aaa cag att gag gaa cat ttc ggg aat tgg acc aca ttt gac 432
 Asp Phe Lys Gln Ile Glu Glu His Phe Gly Asn Trp Thr Phe Asp
 100 105 110

acg ttg gtc aat gat gct cac caa aac gga atc aag gtg att gtc gac 480
 Thr Leu Val Asn Asp Ala His Gln Asn Gly Ile Lys Val Ile Val Asp
 115 120 125

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caa tac ctg acc gat gcg gcg gtt caa ttg gta gca cat gga gcg gat 768
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ggt ttg cgg att gat gcg gtg aag cat ttt aat tcg ggg ttc tcc aaa 816
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tcg ttg gcc gat aaa ctg tac caa aag aaa gac att ttc ctg gtg ggg 864
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 cggt tac gcc aac aac agc ggt gtc aat gtg ctg gat ttt gat ctc aac 960
 Arg Tyr Ala Asn Asn Ser Gly Val Asn Val Leu Asp Phe Asp Leu Asn
 275 280 285

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 ctt aac aat atg gtg aac caa acg ggg aac gag tac aaa tac aaa gaa 1056
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 aat cta atc aca ttt atc gat aac cat gat atg tca aga ttt ctt tcg 1104
 Asn Leu Ile Thr Phe Ile Asp Asn His Asp Met Ser Arg Phe Leu Ser
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 gca ggc ggc aat gac ccg tac aac ccg ggg atg atg ccg gcg ttt gat 1248
 Ala Gly Gly Asn Asp Pro Tyr Asn Arg Gly Met Met Pro Ala Phe Asp
 370 375 380

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 Thr Thr Thr Ala Phe Lys Glu Val Ser Thr Leu Ala Gly Leu Arg
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 agg aac aat gcg gcg atc cag tac ggc acc acc acc cag cgt tgg atc 1344
 Arg Asn Asn Ala Ala Ile Gln Tyr Gly Thr Thr Gln Arg Trp Ile
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 Asn Asn Asp Val Tyr Ile Tyr Glu Arg Lys Phe Phe Asn Asp Val Val
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ctg ttg ggg ggg aac ggg att tcc gtt tcc aat gga agt gtc gct tcg 1536
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 Thr Val Thr Phe Gly Val Thr Ala Thr Val Lys Ser Trp Thr Ser
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 545 550 555

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 Val Lys Val Thr Ala Gly Gly Val Ser Ser Asn Leu Tyr Ser Tyr Asn
 560 565 570 575

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 Ile Leu Ser Gly Thr Gln Thr Ser Val Val Phe Thr Val Lys Ser Ala
 580 585 590

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 Pro Pro Thr Asn Leu Gly Asp Lys Ile Tyr Leu Thr Gly Asn Ile Pro
 595 600 605

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 610 615 620

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 625 630 635

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Ile Asp Arg Phe Tyr Asp Gly Asp Thr Thr Asn Asn Asn Pro Ala Lys
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Ser Tyr Gly Leu Tyr Asp Pro Thr Lys Ser Lys Trp Lys Met Tyr Trp
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Gly Gly Asp Leu Glu Gly Val Arg Gln Lys Leu Pro Tyr Leu Lys Gln
 85 90 95

Leu Gly Val Thr Thr Ile Trp Leu Ser Pro Val Leu Asp Asn Leu Asp
 100 105 110

Thr Leu Ala Gly Thr Asp Asn Thr Gly Tyr His Gly Tyr Trp Thr Arg
 115 120 125

Asp Phe Lys Gln Ile Glu Glu His Phe Gly Asn Trp Thr Thr Phe Asp
130 135 140

Thr Leu Val Asn Asp Ala His Gln Asn Gly Ile Lys Val Ile Val Asp
145 150 155 160

Phe Val Pro Asn His Ser Thr Pro Phe Lys Ala Asn Asp Ser Thr Phe
165 170 175

Ala Glu Gly Gly Ala Leu Tyr Asn Asn Gly Thr Tyr Met Gly Asn Tyr
180 185 190

Phe Asp Asp Ala Thr Lys Gly Tyr Phe His His Asn Gly Asp Ile Ser
195 200 205

Asn Trp Asp Asp Arg Tyr Glu Ala Gln Trp Lys Asn Phe Thr Asp Pro
210 215 220

Ala Gly Phe Ser Leu Ala Asp Leu Ser Gln Glu Asn Gly Thr Ile Ala
225 230 235 240

Gln Tyr Leu Thr Asp Ala Ala Val Gln Leu Val Ala His Gly Ala Asp
245 250 255

Gly Leu Arg Ile Asp Ala Val Lys His Phe Asn Ser Gly Phe Ser Lys
260 265 270

Ser Leu Ala Asp Lys Leu Tyr Gln Lys Lys Asp Ile Phe Leu Val Gly
275 280 285

Glu Trp Tyr Gly Asp Asp Pro Gly Thr Ala Asn His Leu Glu Lys Val
290 295 300

Arg Tyr Ala Asn Asn Ser Gly Val Asn Val Leu Asp Phe Asp Leu Asn
305 310 315 320

Thr Val Ile Arg Asn Val Phe Gly Thr Phe Thr Gln Thr Met Tyr Asp
325 330 335

Leu Asn Asn Met Val Asn Gln Thr Gly Asn Glu Tyr Lys Tyr Lys Glu
340 345 350

Asn Leu Ile Thr Phe Ile Asp Asn His Asp Met Ser Arg Phe Leu Ser
355 360 365

Val Asn Ser Asn Lys Ala Asn Leu His Gln Ala Leu Ala Phe Ile Leu
370 375 380

Thr Ser Arg Gly Thr Pro Ser Ile Tyr Tyr Gly Thr Glu Gln Tyr Met
385 390 395 400

Ala Gly Gly Asn Asp Pro Tyr Asn Arg Gly Met Met Pro Ala Phe Asp
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Thr Thr Thr Ala Phe Lys Glu Val Ser Thr Leu Ala Gly Leu Arg
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Asn Asn Asp Val Tyr Ile Tyr Glu Arg Lys Phe Phe Asn Asp Val Val
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Leu Val Ala Ile Asn Arg Asn Thr Gln Ser Ser Tyr Ser Ile Ser Gly
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Leu Gln Thr Ala Leu Pro Asn Gly Ser Tyr Ala Asp Tyr Leu Ser Gly
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Leu Leu Gly Gly Asn Gly Ile Ser Val Ser Asn Gly Ser Val Ala Ser
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Phe Thr Leu Ala Pro Gly Ala Val Ser Val Trp Gln Tyr Ser Thr Ser
515 520 525

Ala Ser Ala Pro Gln Ile Gly Ser Val Ala Pro Asn Met Gly Ile Pro
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Gly Asn Val Val Thr Ile Asp Gly Lys Gly Phe Gly Thr Thr Gln Gly
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Thr Val Thr Phe Gly Val Thr Ala Thr Val Lys Ser Trp Thr Ser
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Asn Arg Ile Glu Val Tyr Val Pro Asn Met Ala Ala Gly Leu Thr Asp
580 585 590

Val Lys Val Thr Ala Gly Gly Val Ser Ser Asn Leu Tyr Ser Tyr Asn
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Ile Leu Ser Gly Thr Gln Thr Ser Val Val Phe Thr Val Lys Ser Ala
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Pro Pro Thr Asn Leu Gly Asp Lys Ile Tyr Leu Thr Gly Asn Ile Pro
625 630 635 640

Glu Leu Gly Asn Trp Ser Thr Asp Thr Ser Gly Ala Val Asn Asn Ala
645 650 655

Gln Gly Pro Leu Leu Ala Pro Asn Tyr Pro Asp Trp Phe Tyr Val Phe
660 665 670

Ser Val Pro Ala Gly Lys Thr Ile Gln Phe Lys Phe Phe Ile Lys Arg
675 680 685

Ala Asp Gly Thr Ile Gln Trp Glu Asn Gly Ser Asn His Val Ala Thr
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